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Fecal Incontinence in Children, Surgical and Neurological Aspects of Diagnosis and Treatment

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Abstract

Based on the analysis of 79 children with coloproctological anomalies and spinal dysraphism of various forms in combination with other types of spinal malformations: including 28 patients with spinal dysraphism: posture disorders (scoliosis, kyphosis, lordosis)-3 (10.7%); Non- healing of the arches (one vertebra, two or more)-11 (39.3%); Sacral development abnormality (agenesis, dysgenesis, deviation)-5 (17.8%); Coccyx abnormalities-1 (3.6%); Terminal filament lipoma-1 (3.6%); Isolated spinabifida osculta-7 (25.0%). 51 patients had fecal incontinence: with anorectal-29 (56.9%), Urogenital abnormalities-3 (5.9%) and congenital malformations of the colon-19 (37.2%).

Keywords: Fecal Incontinence; Surgical; Neurological; Diagnosis; Treatment; Children

Introduction

Fecal incontinence (FI) is the inability to hold and remove stools at the right time in the right place. FI, as well as urinary incontinence, are manifestations of various clinically, etiological and pathogenetic disorders resulting from various defects and diseases of the rectum, anorectal zone, traumatic and iatrogenic injuries, as well as exposure to adverse factors [1-3]. FI can be congenital (primary fecal incontinence) and acquired (secondary fecal incontinence). For retention, an important place is occupied by the development of neuromuscular structures in parallel with the embryological development of the rectum and anus. Neurogenic control is provided by the nerves of the 2nd, 3rd and 4th sacral segments. Loss of innervation from the 2nd to the 5th sacral segment leads to incurable incontinence. Currently, among specialists there is an opinion that the presence of fecal incontinence, more than constipation of an organic nature, signals the unsatisfactory quality of the performed surgical intervention and creates a threat to the patient's quality of life [4-6]. Restoration of topographic and anatomical relationships during surgical intervention in the anorectal zone does not always eliminate functional disorders. In 30-60% of patients, severe residual disorders compromised by them are observed [7-10]. Another problem is the violation of the act of defecation in the normal anatomical structure of the sphincter apparatus of the rectum. These include disorders of the central and peripheral innervation of the rectum, both congenital and acquired. In these cases, the rectum and sphincter apparatus have a normal structure, but do not receive adequate nerve impulses. This problem is often associated with existing and timely undetected myelopathy and myelodysplasia [11-14].

Thus, literature data show that a significant part of patients with high and low anorectal malformation and coloproctological pathology in the long term suffer from impaired stool control and have a reduced quality of life [12,15-17]. Fecal incontinence is a pathology leading to severe disability and profound psychosocial problems associated with a sharp deterioration in the quality of life and complete isolation of the child from society. In connection with all of the above, the search for ways to solve this problem is relevant and timely.

Purpose of the Study

To increase the effectiveness of complex treatment of children with fecal incontinence based on the development of differentiated diagnostic and treatment tactics, taking into account the identified anatomical and functional disorders.

Material and Research Methods

The work is based on a retro- and prospective analysis of the diagnosis and treatment results of 241 children, of which 79 (32.8%) are patients with coloproctological anomalies and sospinal dysraphism of various forms in combination with other types of spinal malformations and anomalies of other organs and pathologies leading to fecal incontinence, accompanied by constipation in the form of fecal and urinary incontinence or kalomazaniya, admitted to the clinical bases of the Children's Surgical Hospital 2 of the city of Tashkent, the Department of Hospital Pediatric Surgery of the Tashkent Pediatric Medical Institute in the period 2016-2020. Additional examinations, treatment and rehabilitation measures were carried out with the participation of relevant specialists (neuropathologist, pediatric surgeon, urologist, orthopedist). Of these, 28 (35.4%) with various forms of spinal dysraphism; 51 (64.6%) with anorectal, urogenital anomalies and congenital malformations of the colon. The age of the patients ranged from 3 months, under 18 years old. Among the patients, boys predominated - 42 (53.2%), girls accounted for 37 (46.8%).

Comprehensive clinical and neurological examinations and paraclinical research methods (MSCT, MRI of the spinal column and spinal cord, electromyography of the muscles of the lower extremities) were carried out.

Results and Discussion

Based on an analysis of 79 children with coloproctological anomalies and various forms of spinal dysraphism in combination with other types of spinal malformations: including 28 patients with spinal dysraphism: Posture Disorder (scoliosis, kyphosis, lordosis)-3 (10.7%); Non-Closure of the Arches (one vertebra, two or more than two)-11 (39.3%); Sacrum anomaly (agenesis, dysgenesis, deviation)-5 (17.8%); Coccyx Anomalies-1 (3.6%); Terminal Filament Lipoma-1 (3.6%); Isolated Spinabifida Occulta-7 (25.0%). In 51 patients, fecal incontinence: with anorectal-29 (56.9%), urogenital anomalies-3 (5.9%) and congenital malformations of the colon-19 (37.2%).

In infants and older children with coloproctological anomalies and various forms of spinal dysraphism, the following symptoms prevailed: fecal incontinence-41 (51.9%); urinary incontinence-8 (10.1%); chronic constipation with paradoxical fecal incontinence-11 (14.0%); persistent constipation-19 (24, 0%). In 17 (21.5%) patients, fecal and urinary incontinence was noted.

According to the results of complex studies, the frequency of latent spinal dysraphism was different in the nature of the revealed disorders. Of 28 patients with anorectal, urogenital and colon anomalies according to the results of radiation methods, 3 (10.7%) patients had changes in the spinal column: manifested by scoliosis. One patient (3.6%) had sacrum and coccyx anomalies. In 5 of them-hypoplasia and agenesis of the coccyx, and in 2-sacral anomalies. In 19 (67.8%) patients, non-closure of the arches of the vertebrae, predominantly of the lumbosacral localization, was diagnosed, covering one (13), two or more vertebrae (6). In 5 (17.8%) children, a combination of individual forms of spinal anomalies in the form of non-closure and agenesis in various departments was observed. Localization of the terminal filament in the structure of the spinal cord was revealed on MSCT in 1 case.

Spinabifida ossulta in an isolated form, found in 7 patients, was the most common type of latent spinal dysraphism. Non-overgrowth of the arches of one vertebra (mainly lumbar) was noted only in 5 (71.4%) cases. In 2 (28.6%) patients, non-closure of the arches was observed along two or several vertebrae: with localization in the lumbar spine in 1, and simultaneously within the indicated localizations in 1 patient.

In 51 children with anorectal, urogenital anomalies and congenital malformations of the large intestine, posture disorders were found in 3 (5.9%), sacral developmental abnormalities-in 5 (9.8%), vertebral body abnormalities with localization in the lumbosacral region-in 11 (21.6%). In 32 (62.7%) patients, non-closure of the arches of the vertebrae in the lumbosacral region was diagnosed with coverage of two (13) or more vertebrae (19).

The result was considered well-31 (39.2%) in the absence of complaints, neurological symptoms and residual phenomena, the patient is fully socially adapted, is not registered for disability. Satisfactory results-29 (36.7%) was considered in the presence of positive dynamics, persistence of moderate residual complications in the absence of signs of spinal cord fixation syndrome according to the results of MRI studies. The patient is partially socially adapted. Receives disability benefits. An unsatisfactory result-19 (24.1%) considered the absence of positive dynamics or negative dynamics after repeated courses of rehabilitation therapy. Identification of signs of spinal dysplasia or spinal cord fixation syndrome during MRI studies. The patient is not socially adapted. Disability since childhood.

Conclusion

It was found that with coloproctological anomalies and with spinal dysraphism of various forms in combination with other types of spinal malformations in children, 32.8% are presented, of which scoloproctological 64.6%, neurological disorders 35.4%, among them: children under 7 years of age 76.0%; older age groups- 24.0%.

A differentiated approach, taking into account the systematization of clinical manifestations and early diagnosis and treatment of coloproctological anomalies and spinal dysraphism of various forms in combination with other types of spinal malformations, eliminates secondary complications during surgery or in the early postoperative period.

The severity and type of dysfunctions of the pelvic organs depend on the nature of myelodysplasia, localization and area of cleavage in the spine. The main manifestations are constipation-8.9%, fecal incontinence - 34.2%, urinary disorders -7.6%, alone or in combination-10.1%.

MRI and MSCT of the spine and spinal cord are complementary methods, differing in high specificity and sensitivity for detecting SHG and other forms of spinal dysraphism. Ultrasound (bladder) and ENMG data increase the accuracy of complex diagnostics, allow assessing the dynamics of functional disorders and the prognosis of the disease.

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